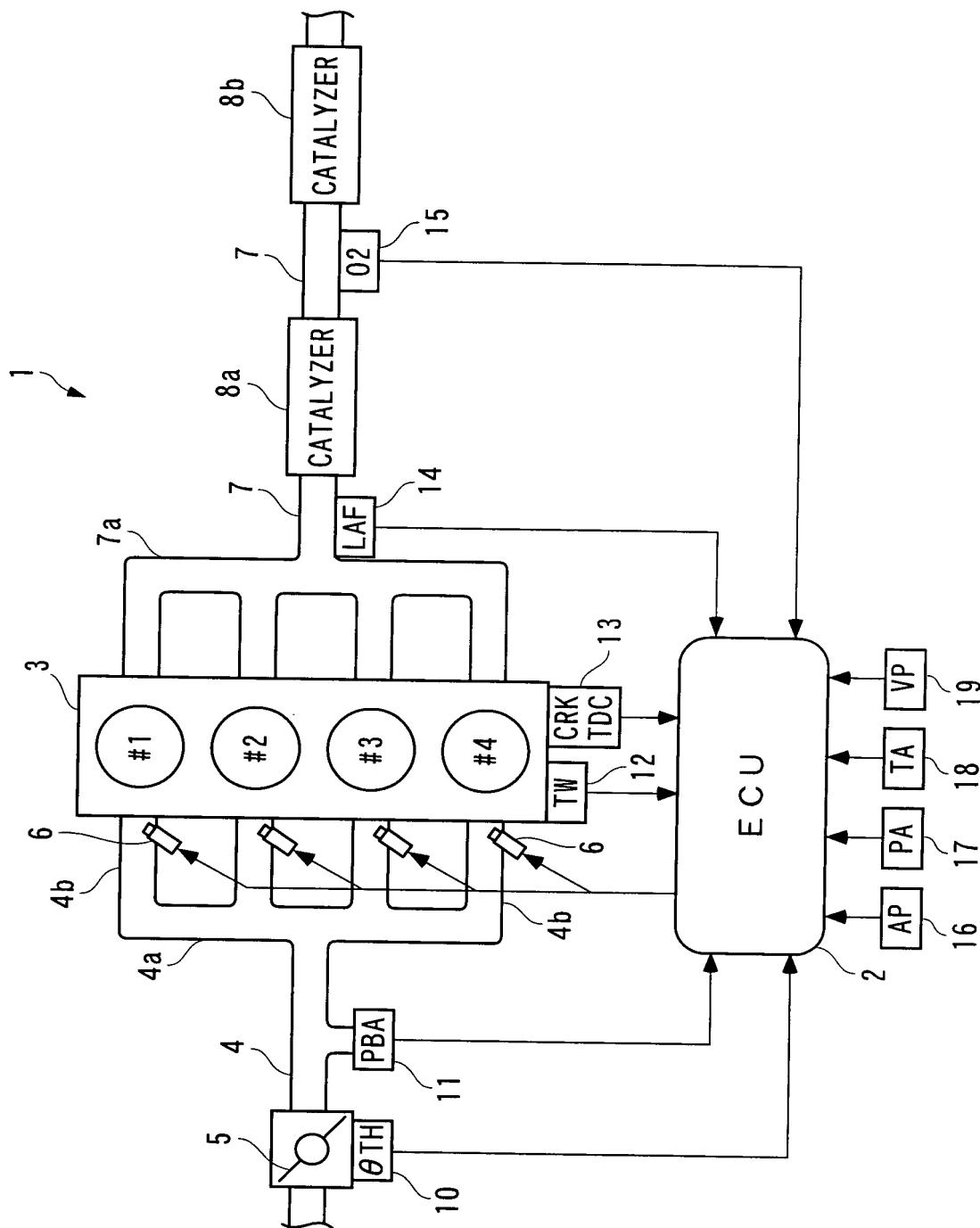


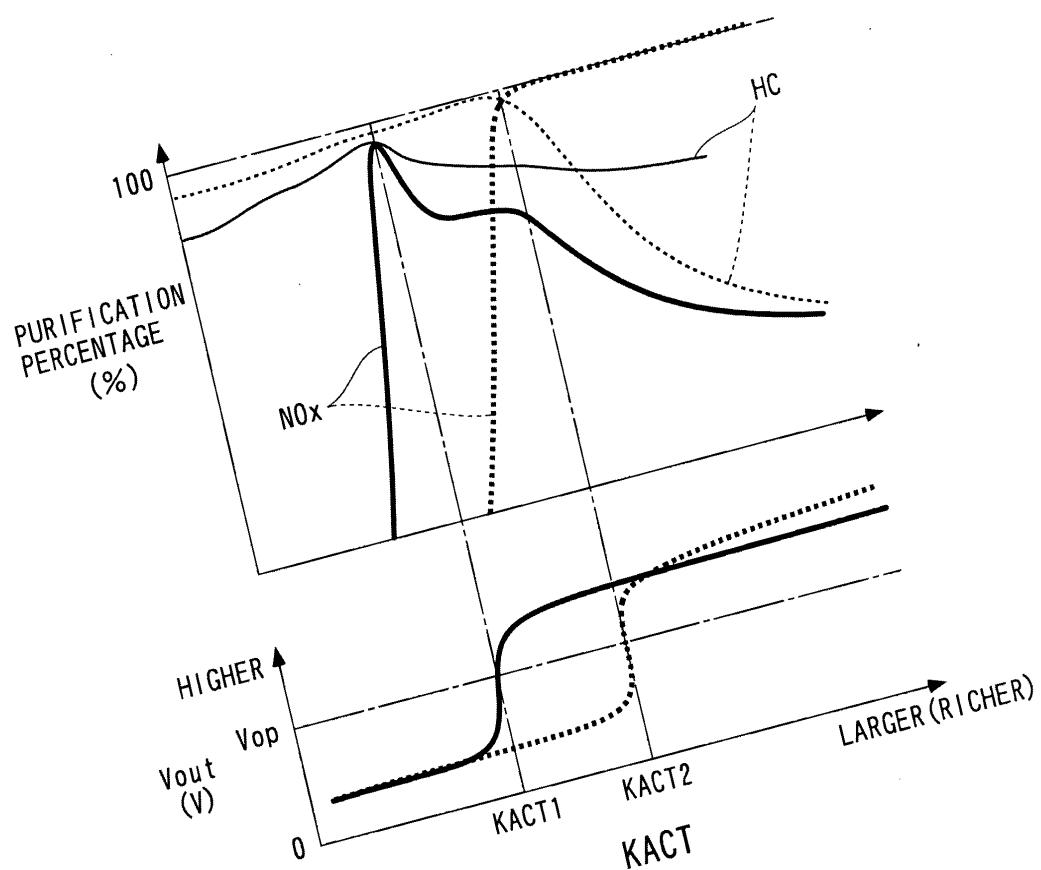
FIG. 1



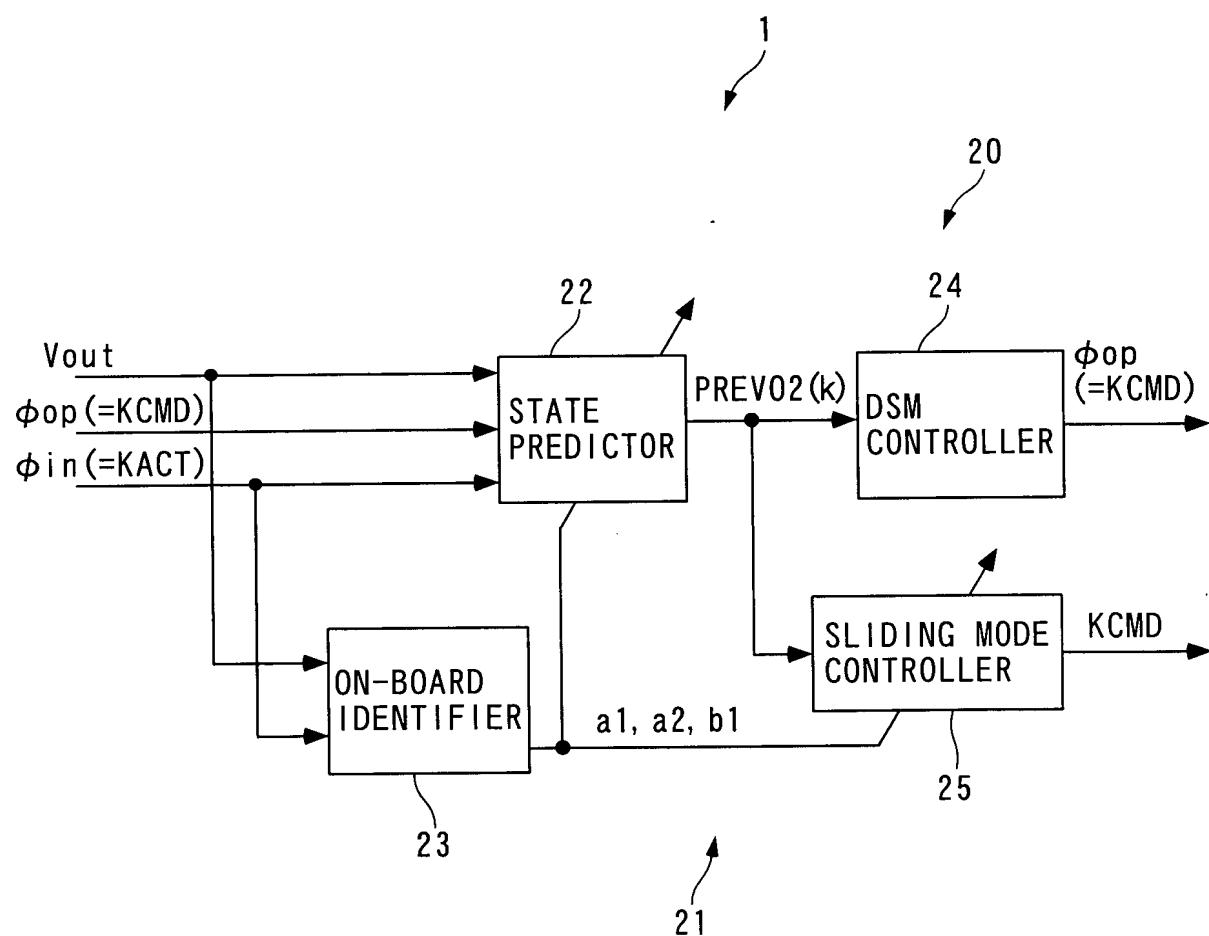
(2 / 31)

H_2-2350

FIG. 2



F I G. 3



F I G. 4

$$A = \begin{bmatrix} a_1 & a_2 \\ 1 & 0 \end{bmatrix} \quad \dots \dots (4)$$

$$B = \begin{bmatrix} b_1 \\ 0 \end{bmatrix} \quad \dots \dots (5)$$

$$\text{PREV02}(k) = \alpha_1 \cdot V02(k) + \alpha_2 \cdot V02(k-1) + \sum_{i=1}^{dt} \beta_i \cdot \text{DKCMD}(k-i) \quad \dots \dots (6)$$

Where α_1 : One-row, one-column element of A^{dt} ;
 α_2 : One-row, two-column element of A^{dt} ; and
 β_i : One-row element of $A^{i-1}B$.

$$\begin{aligned} \text{PREV02}(k) = & \alpha_1 \cdot V02(k) + \alpha_2 \cdot V02(k-1) \\ & + \sum_{i=1}^{d'-1} \beta_i \cdot \text{DKCMD}(k-i) + \sum_{j=d'}^{dt} \beta_j \cdot \text{DKACT}(k-j) \end{aligned} \quad \dots \dots (7)$$

Where β_j : One-row element of $A^{j-1}B$.

F I G. 5

$$\theta(k) = \theta(k-1) + K P(k) \cdot i de_f(k) \quad \dots \dots (8)$$

$$\theta(k)^T = [a1'(k), a2'(k), b1'(k)] \quad \dots \dots (9)$$

$$i de_f(k) = \frac{1}{n} \sum_{i=1}^n i de(i) \quad \dots \dots (10)$$

$$i de(k) = V02(k) - V02HAT(k) \quad \dots \dots (11)$$

$$V02HAT(k) = \theta(k-1)^T \zeta(k) \quad \dots \dots (12)$$

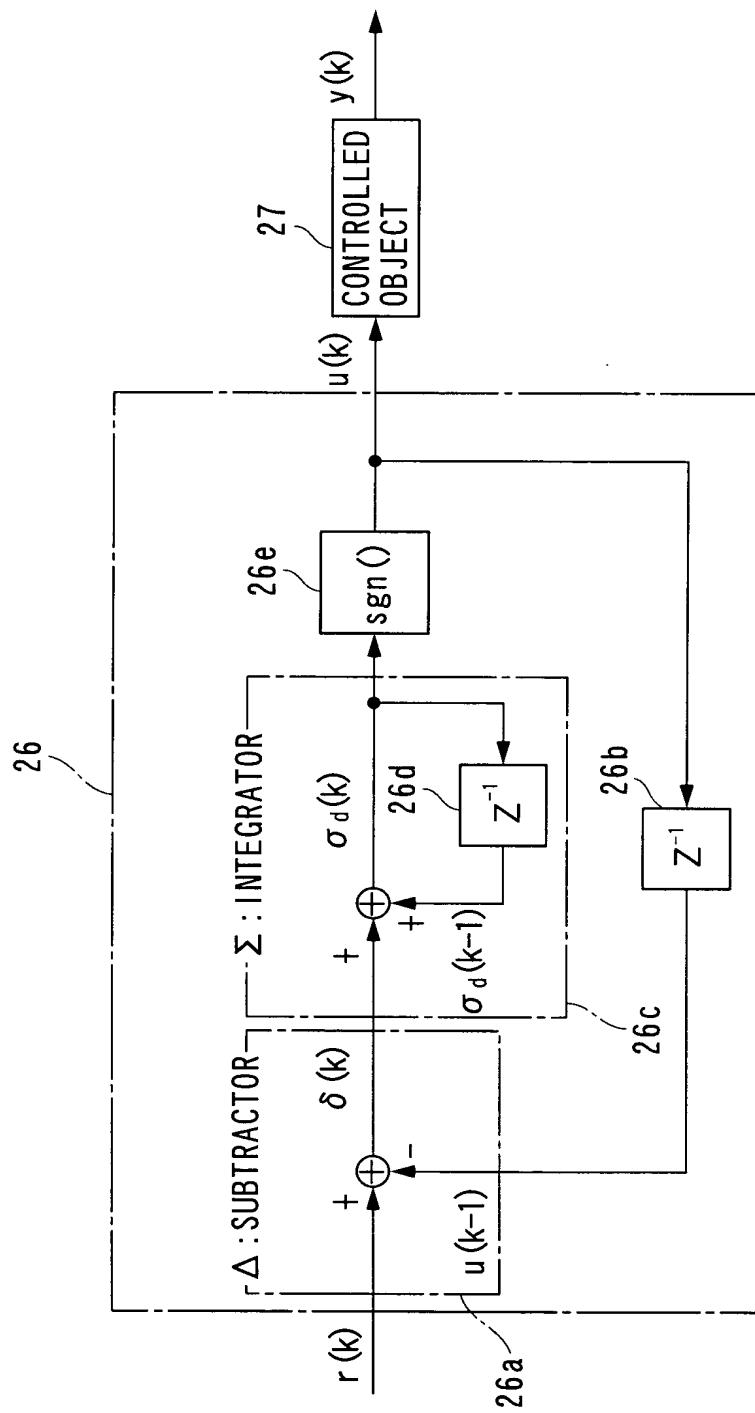
$$\zeta(k)^T = [V02(k-1), V02(k-2), DKACT(k-d-dd)] \quad \dots \dots (13)$$

$$K P(k) = \frac{P(k) \zeta(k)}{1 + \zeta(k)^T P(k) \zeta(k)} \quad \dots \dots (14)$$

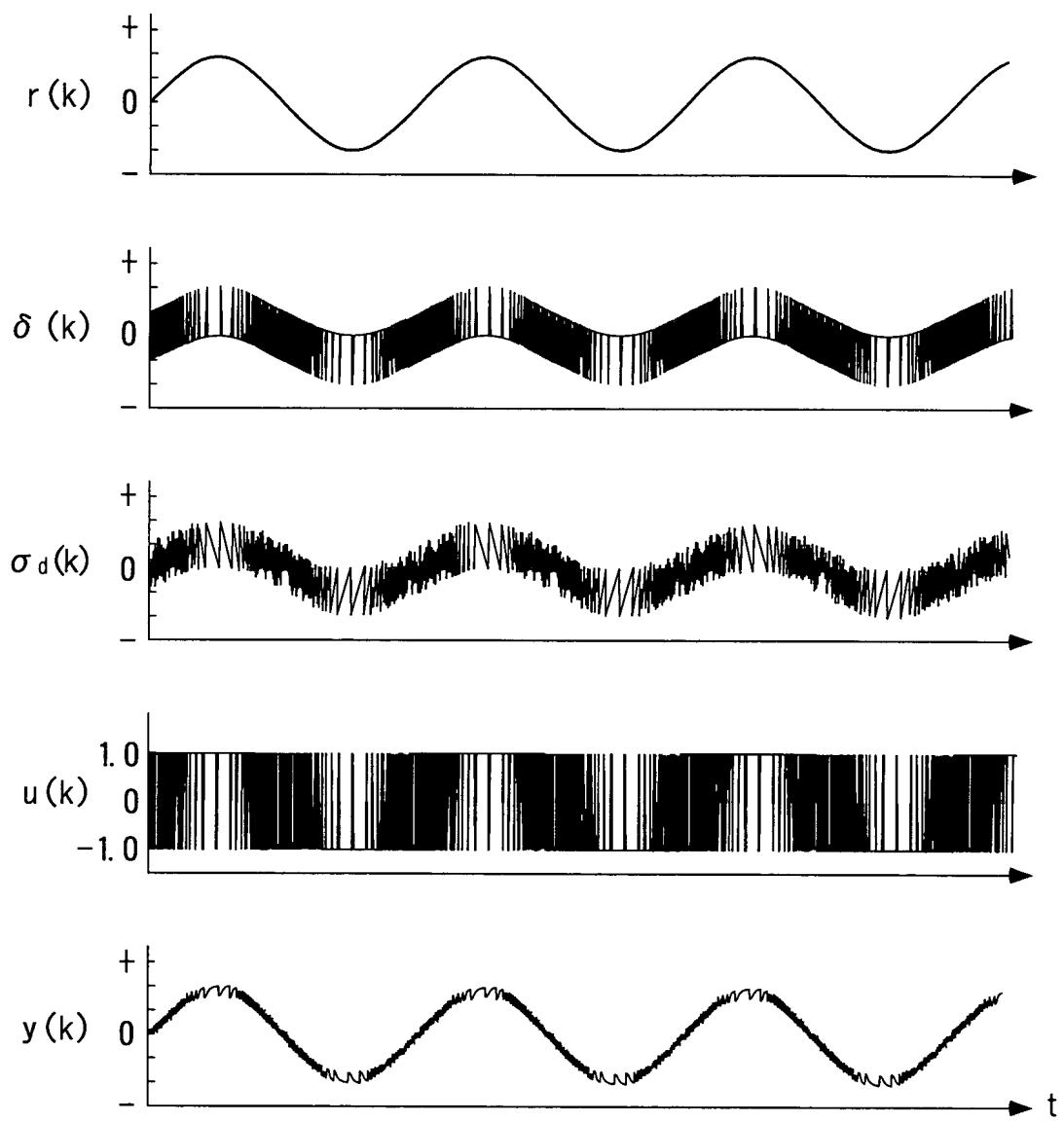
$$P(k+1) = \frac{1}{\lambda_1} \left(I - \frac{\lambda_2 P(k) \zeta(k) \zeta(k)^T}{\lambda_1 + \lambda_2 \zeta(k)^T P(k) \zeta(k)} \right) P(k) \quad \dots \dots (15)$$

Where I is a unit matrix

FIG. 6



F I G. 7



F I G. 8

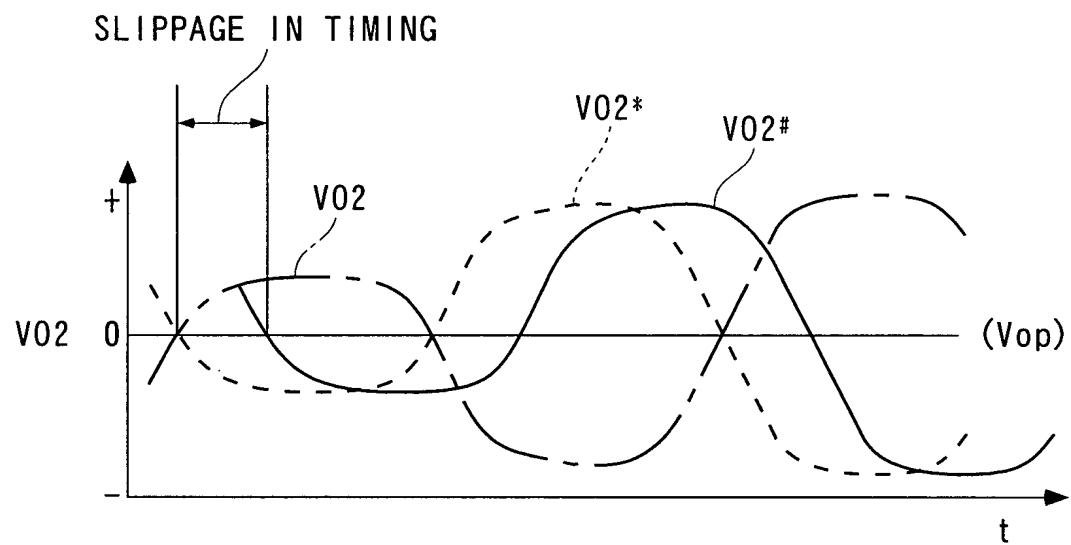
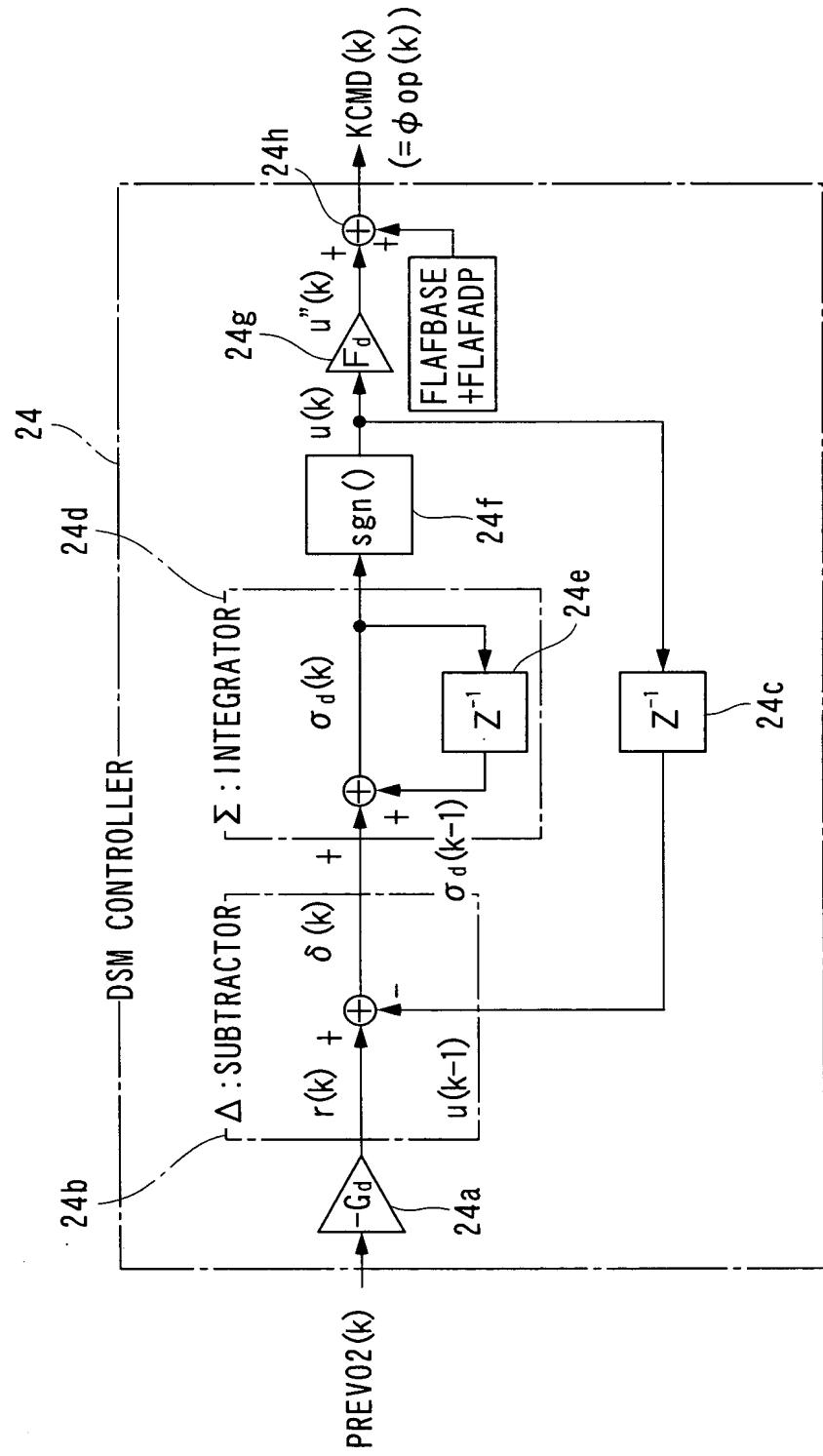


FIG. 9



F I G. 10

$$U_{\text{sl}}(k) = U_{\text{eq}}(k) + U_{\text{rch}}(k) + U_{\text{adp}}(k) \quad \dots \dots (26)$$

$$U_{\text{eq}}(k) = \frac{-1}{S1 \cdot b1} \{ [S1 \cdot (a1-1) + S2] \cdot v02(k+dt) + (S1 \cdot a2 - S2) \cdot v02(k+dt-1) \} \quad \dots \dots (27)$$

$$U_{\text{rch}}(k) = \frac{-F}{S1 \cdot b1} \cdot \sigma(k+dt) \quad \dots \dots (28)$$

$$U_{\text{adp}}(k) = \frac{-G}{S1 \cdot b1} \sum_{i=0}^{k+dt} \Delta T \cdot \sigma(i) \quad \dots \dots (29)$$

F I G. 1 1

$$\sigma \text{PRE}(k) = S1 \cdot \text{PREV02}(k) + S2 \cdot \text{PREV02}(k-1) \quad \dots \dots (3 0)$$

$$U_{\text{sl}}(k) = U_{\text{eq}}(k) + U_{\text{rch}}(k) + U_{\text{adp}}(k) \quad \dots \dots (3 1)$$

$$U_{\text{eq}}(k) = \frac{-1}{S1 \cdot b1} \{ [S1 \cdot (a1-1) + S2] \cdot \text{PREV02}(k) + (S1 \cdot a2 - S2) \cdot \text{PREV02}(k-1) \} \quad \dots \dots (3 2)$$

$$U_{\text{rch}}(k) = \frac{-F}{S1 \cdot b1} \cdot \sigma \text{PRE}(k) \quad \dots \dots (3 3)$$

$$U_{\text{adp}}(k) = \frac{-G}{S1 \cdot b1} \sum_{i=0}^k \Delta T \cdot \sigma \text{PRE}(i) \quad \dots \dots (3 4)$$

FIG. 12

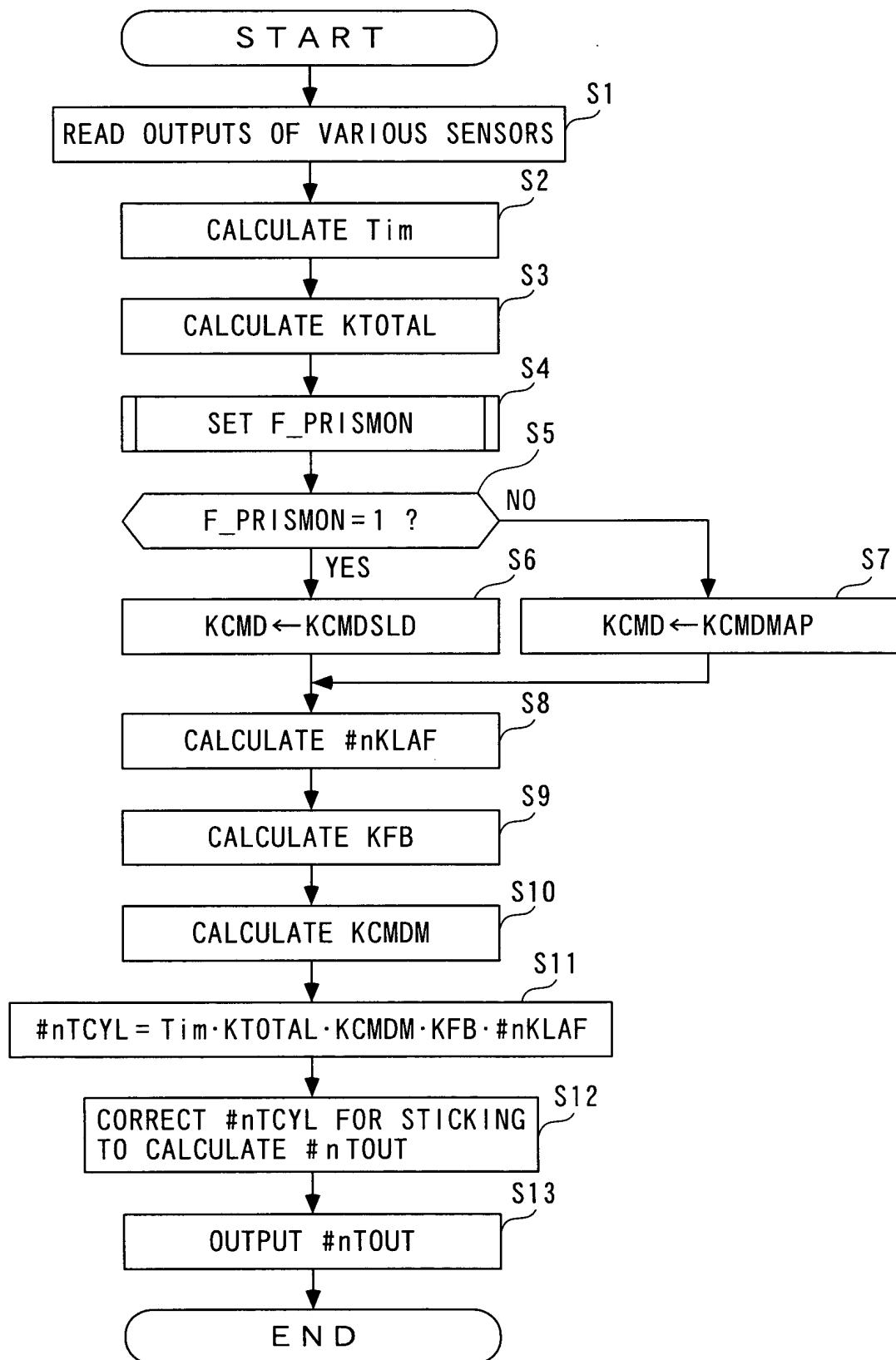
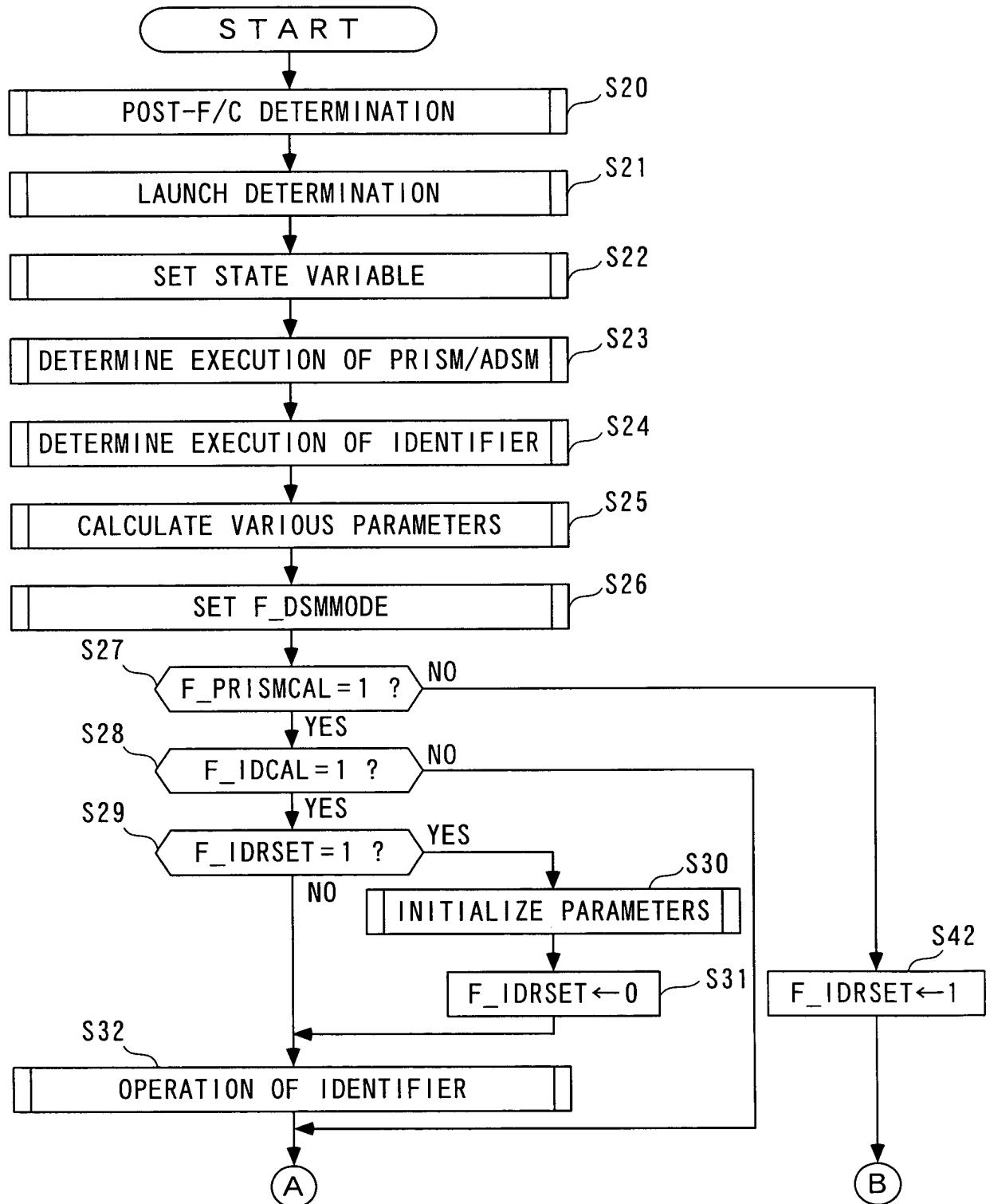


FIG. 13



F I G. 1 4

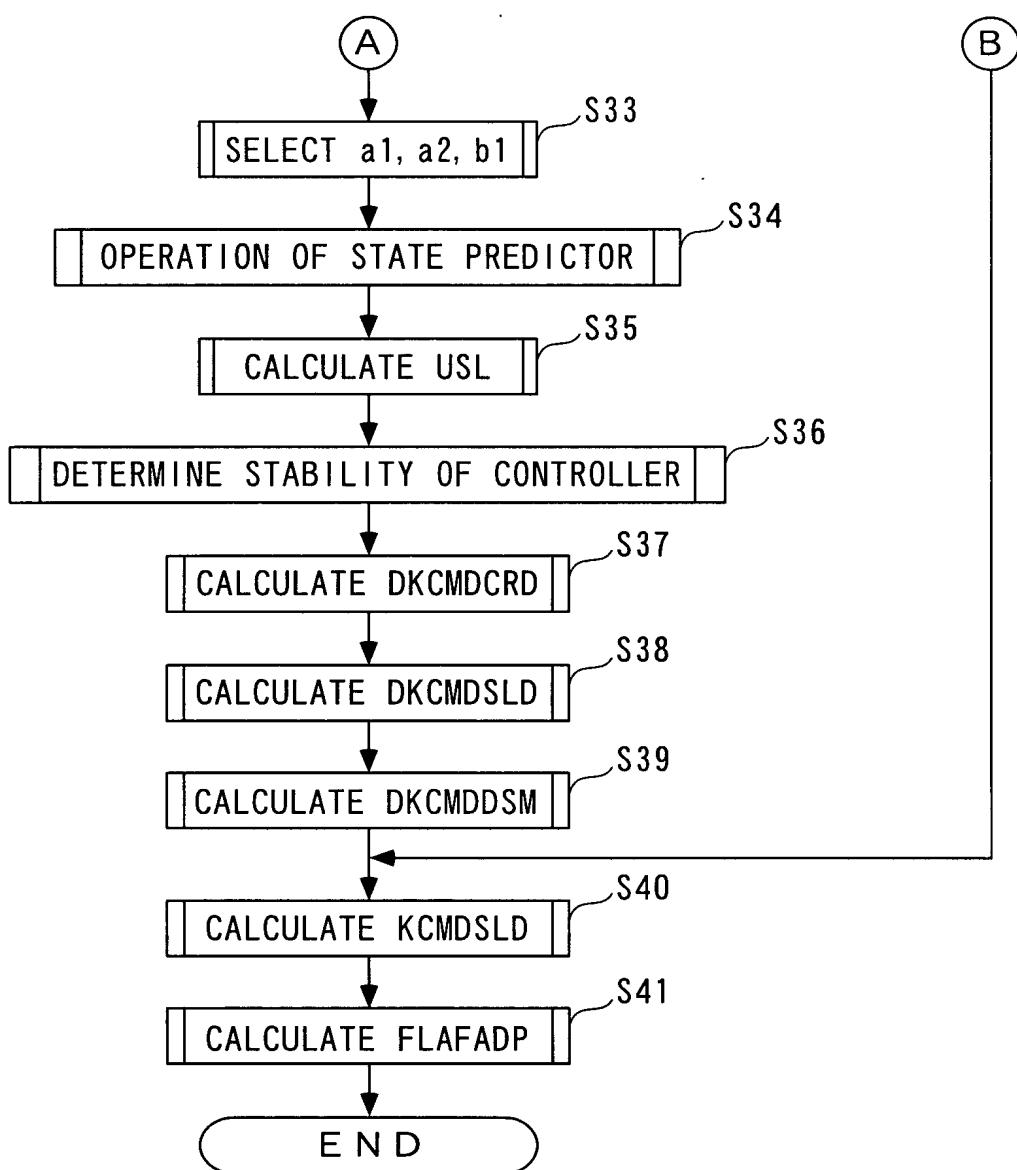


FIG. 15

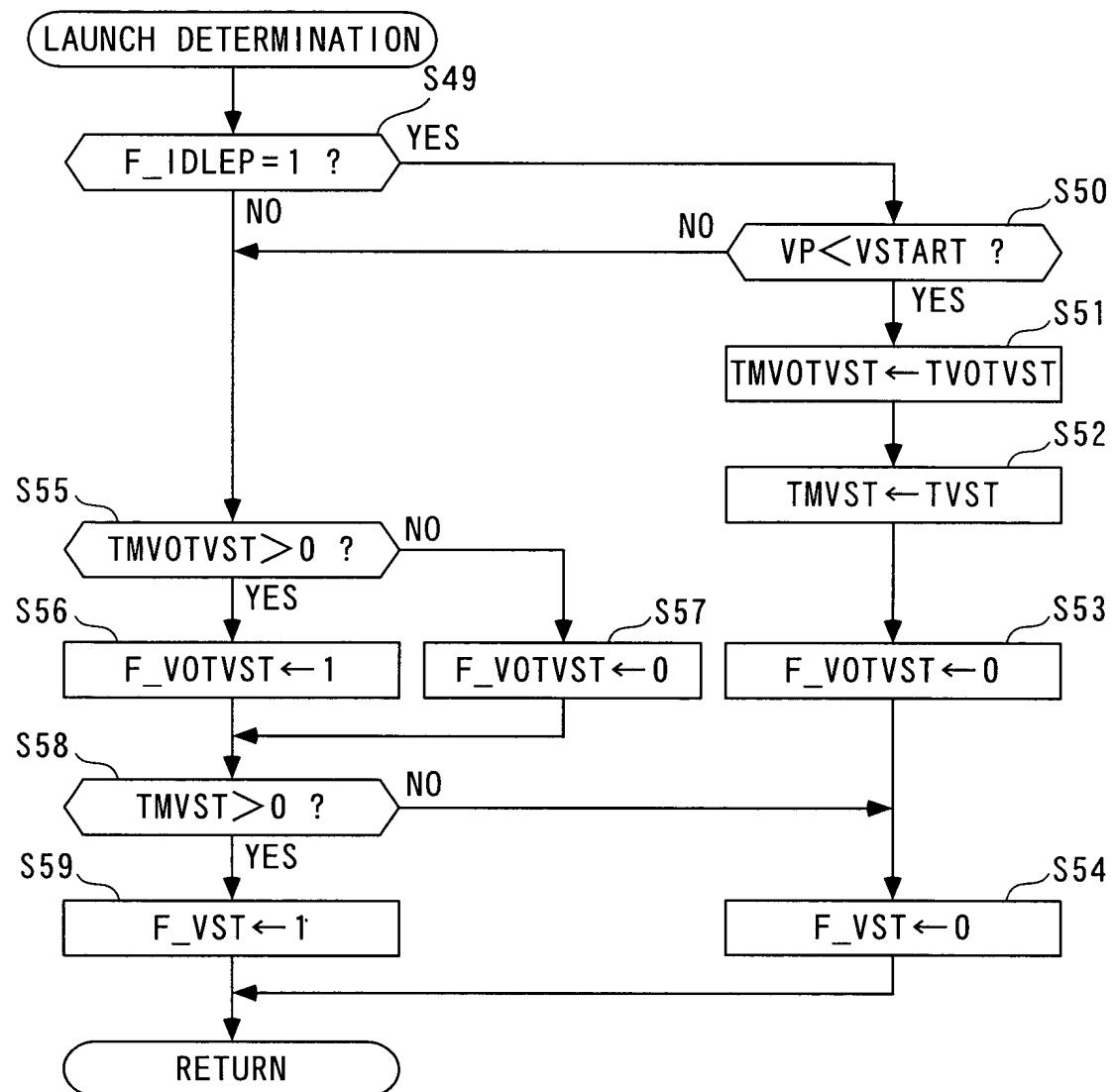
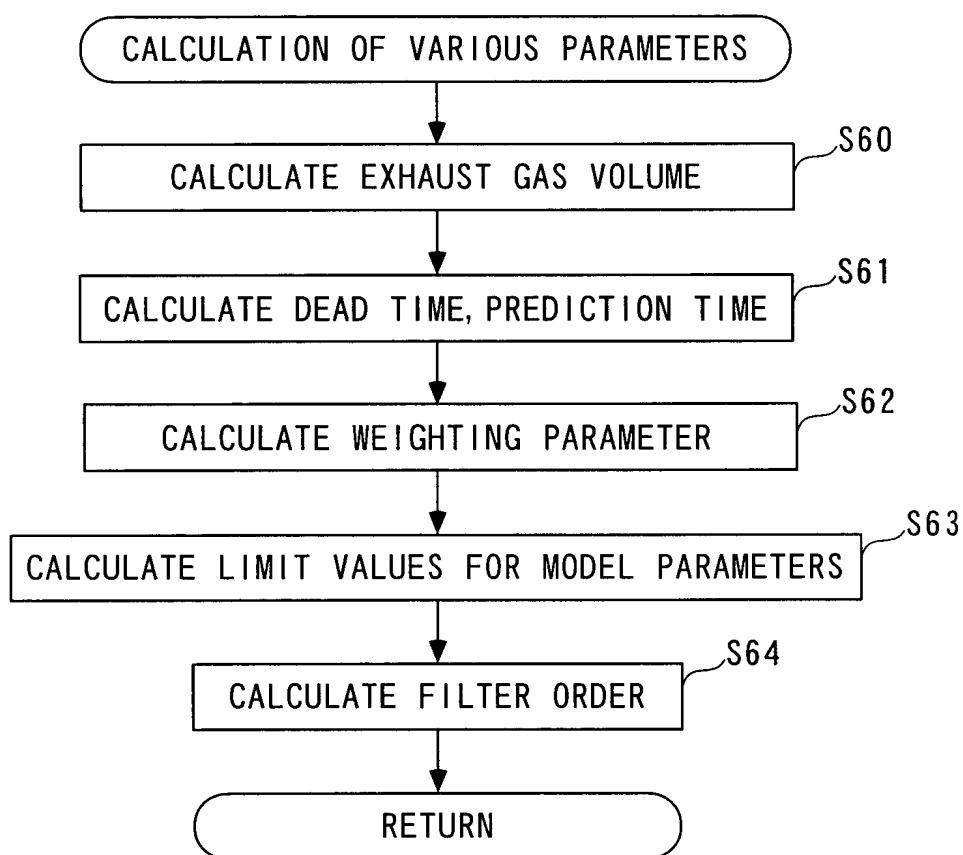
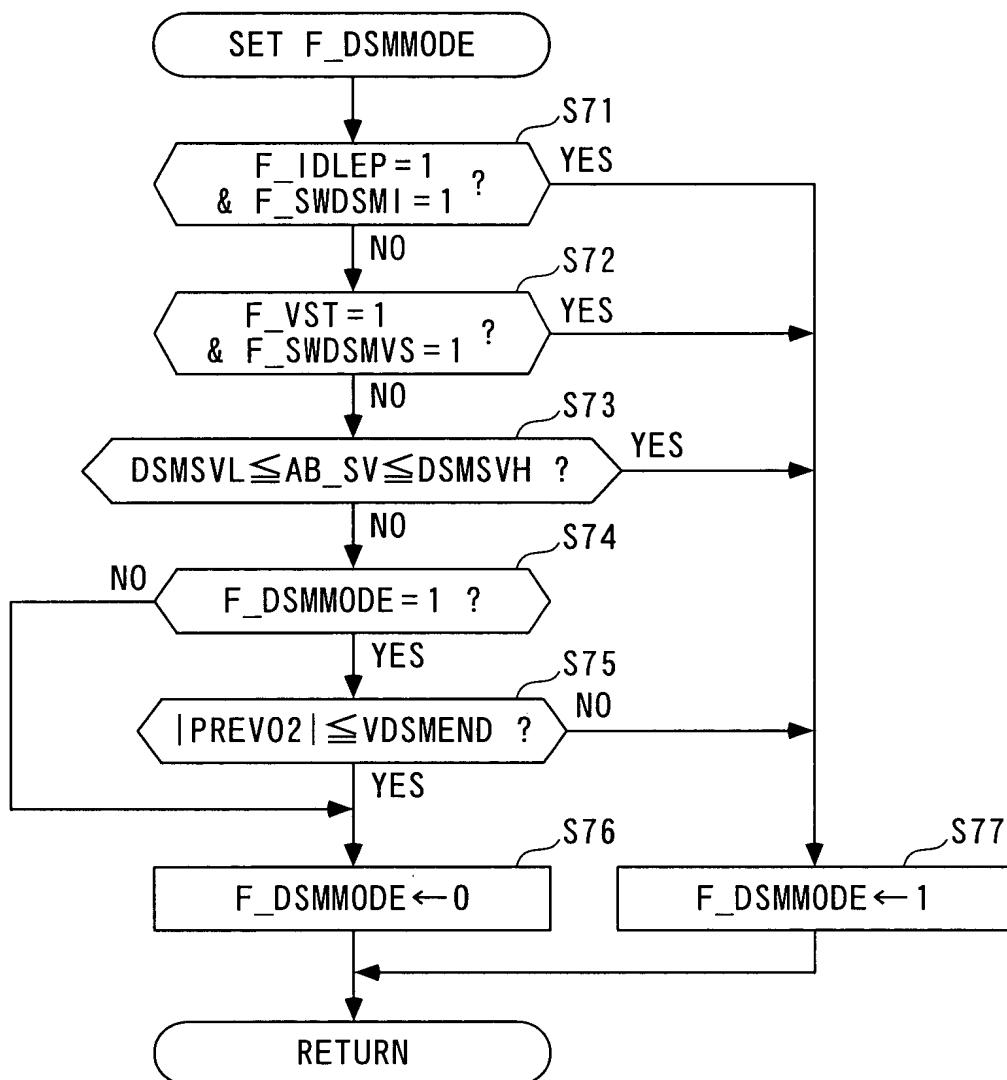


FIG. 16



F I G. 17



F I G. 18

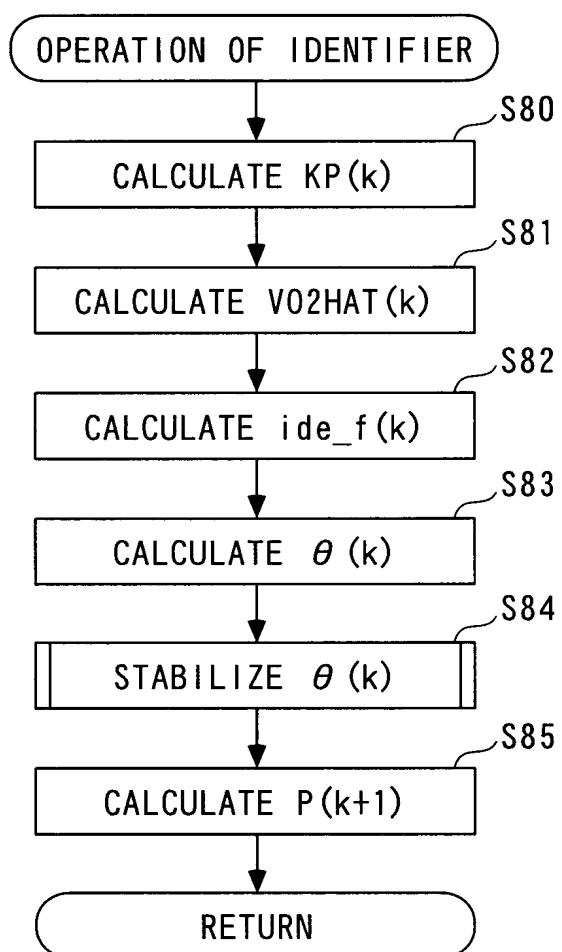
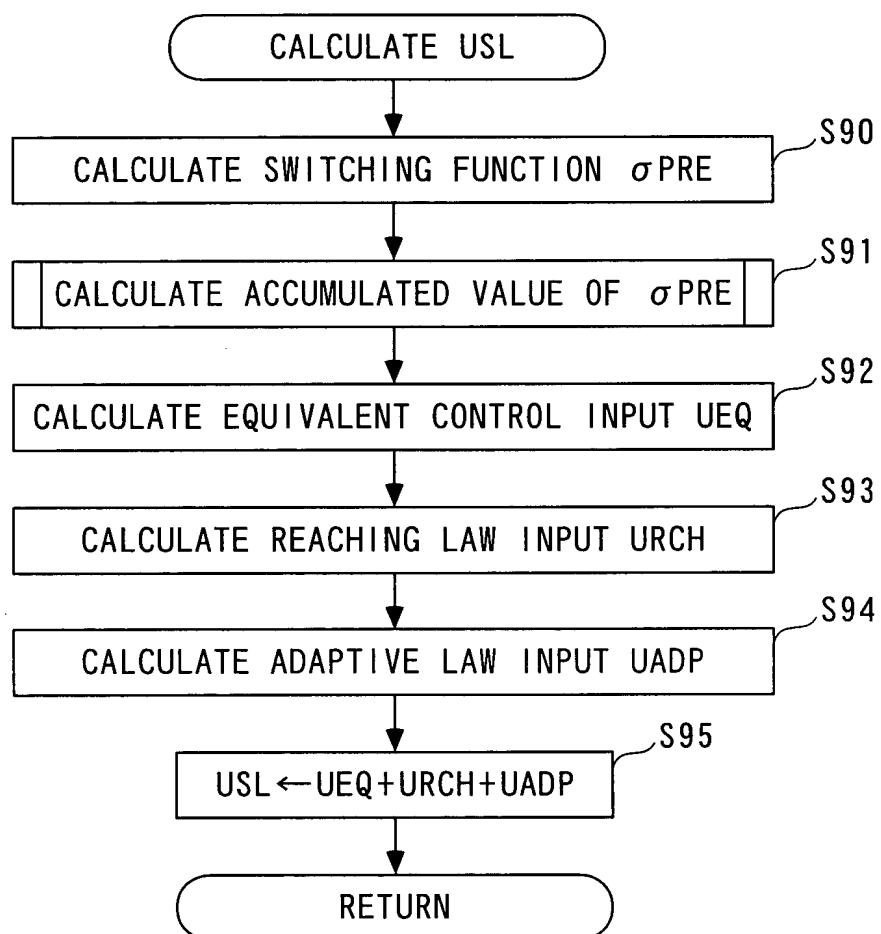
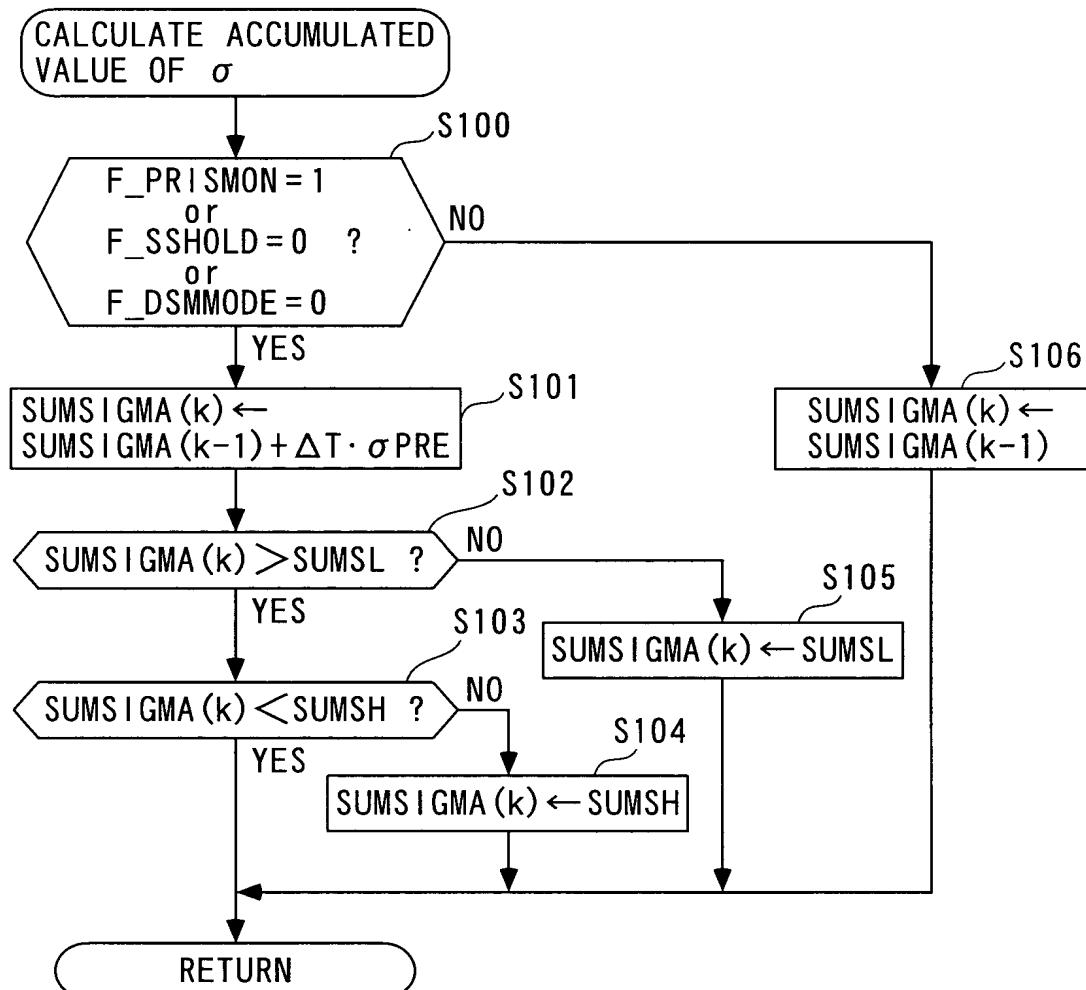


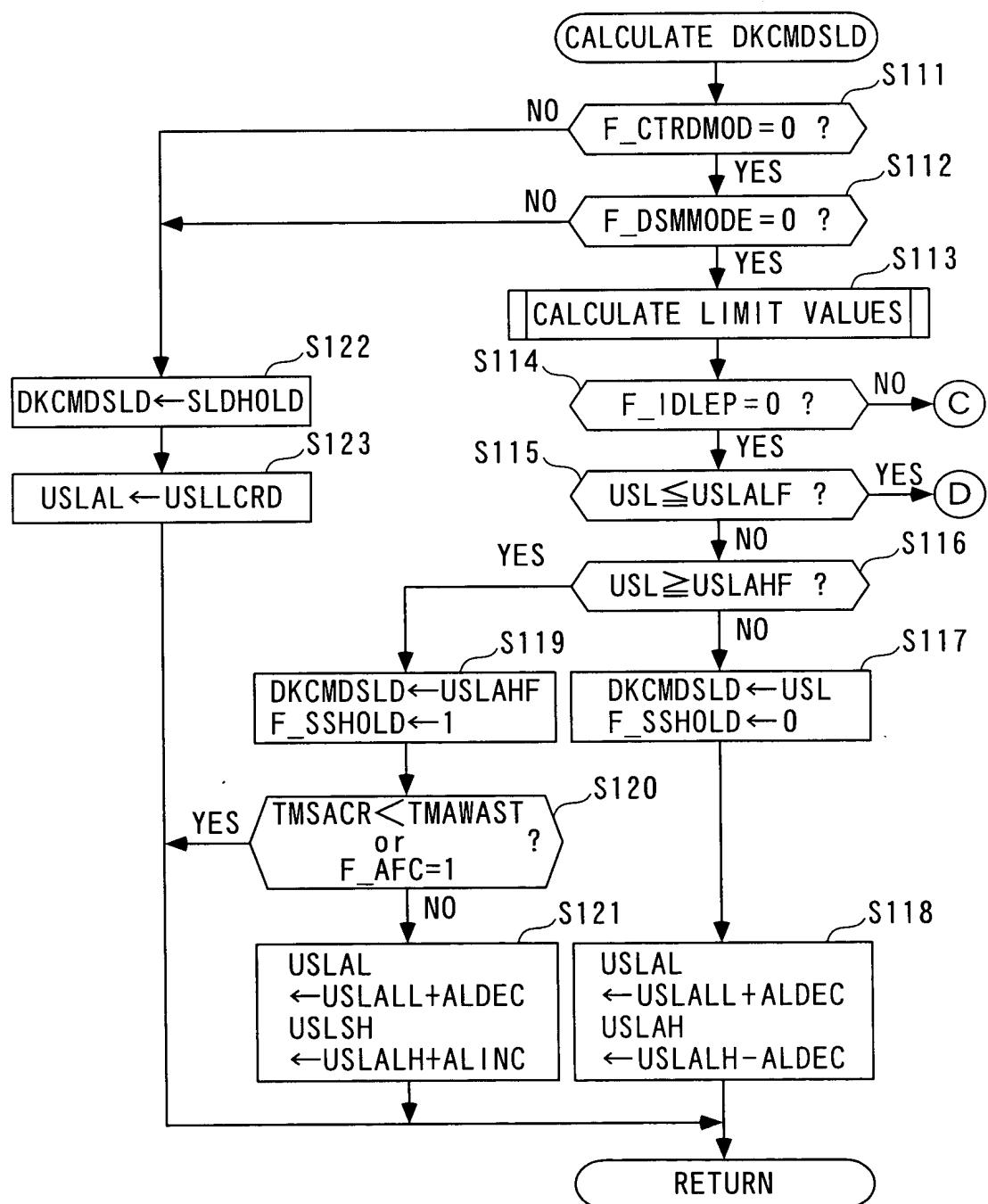
FIG. 19



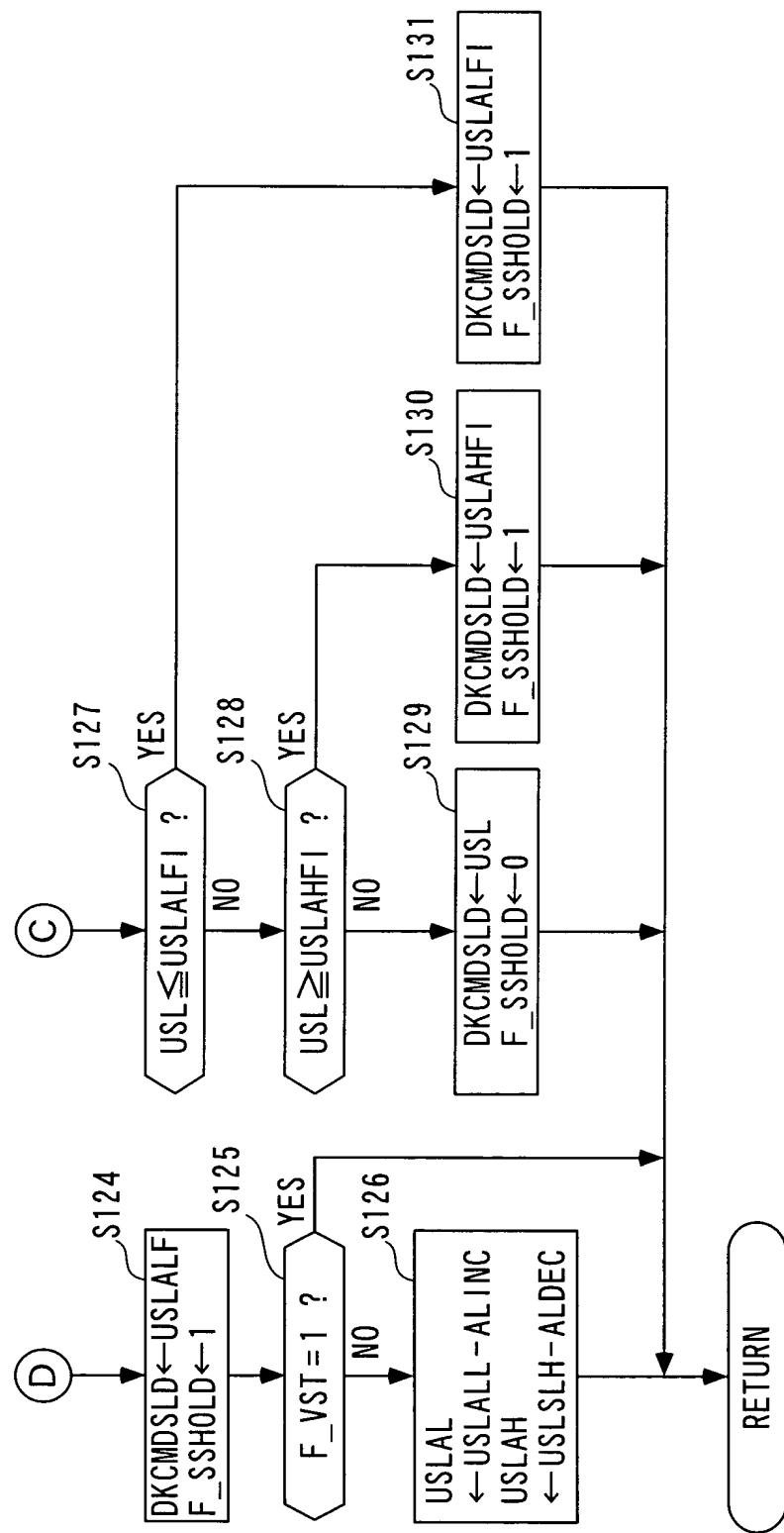
F I G. 2 0



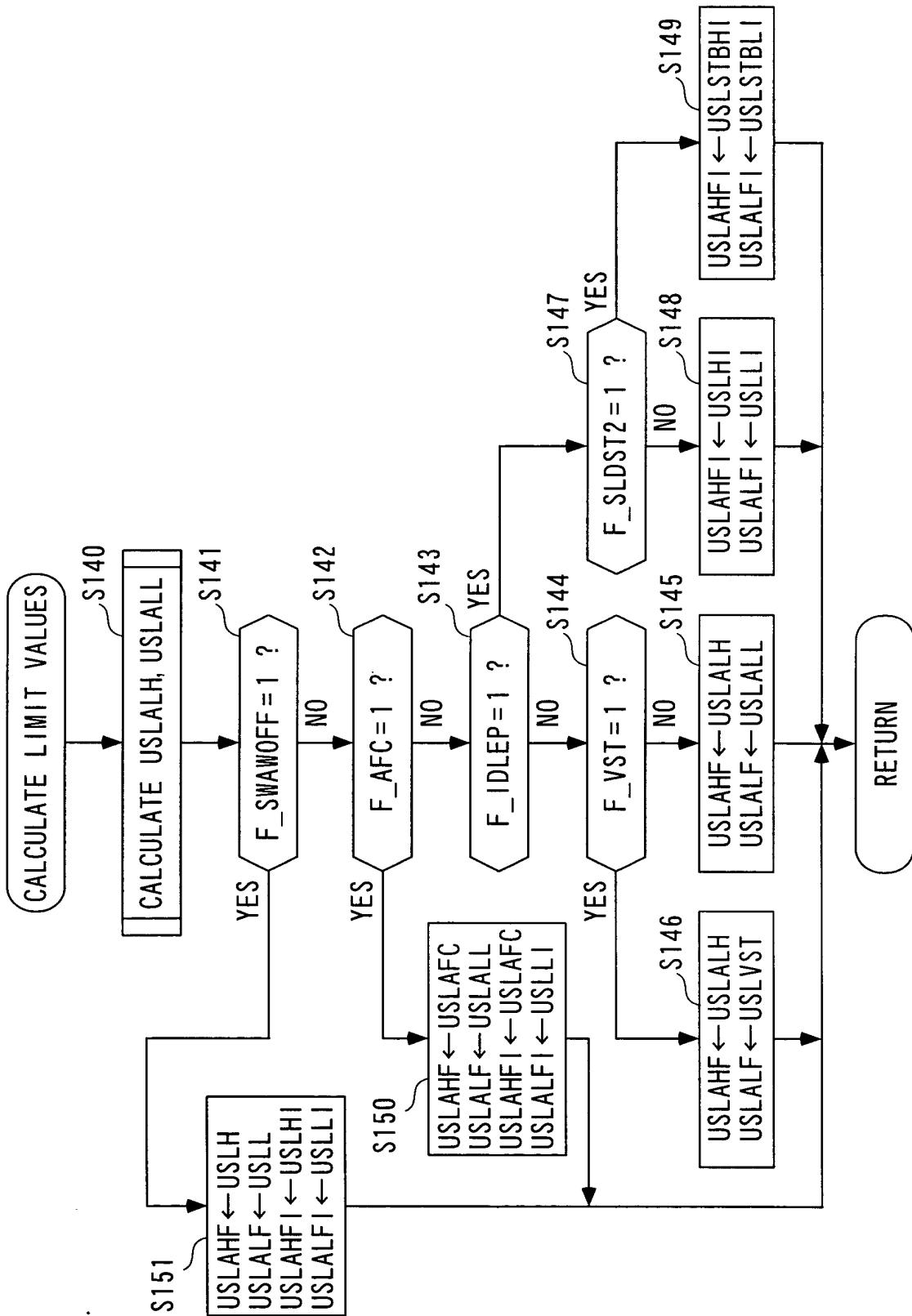
F I G . 2 1



F I G. 22



F I G . 2 3



F I G . 2 4

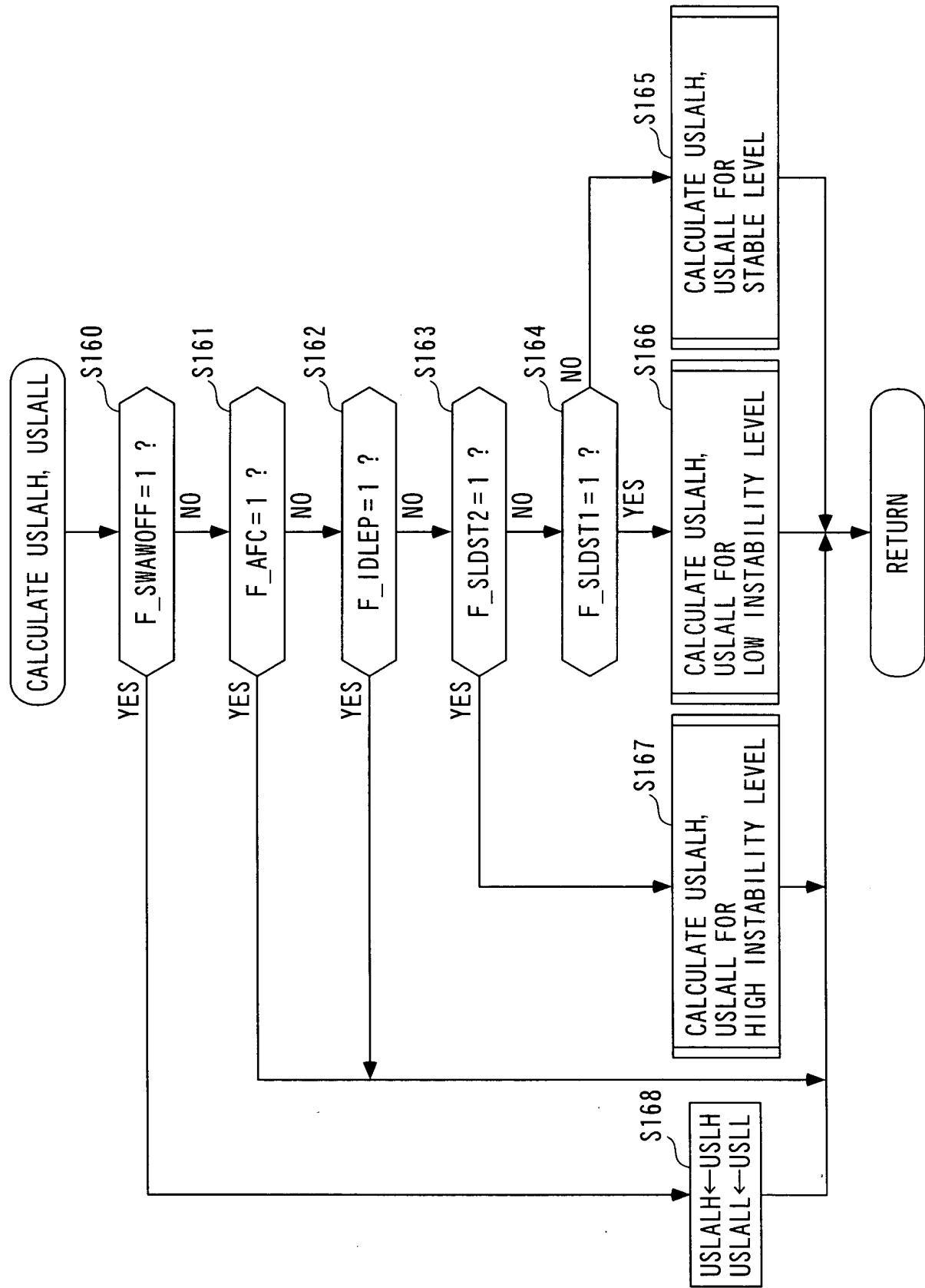
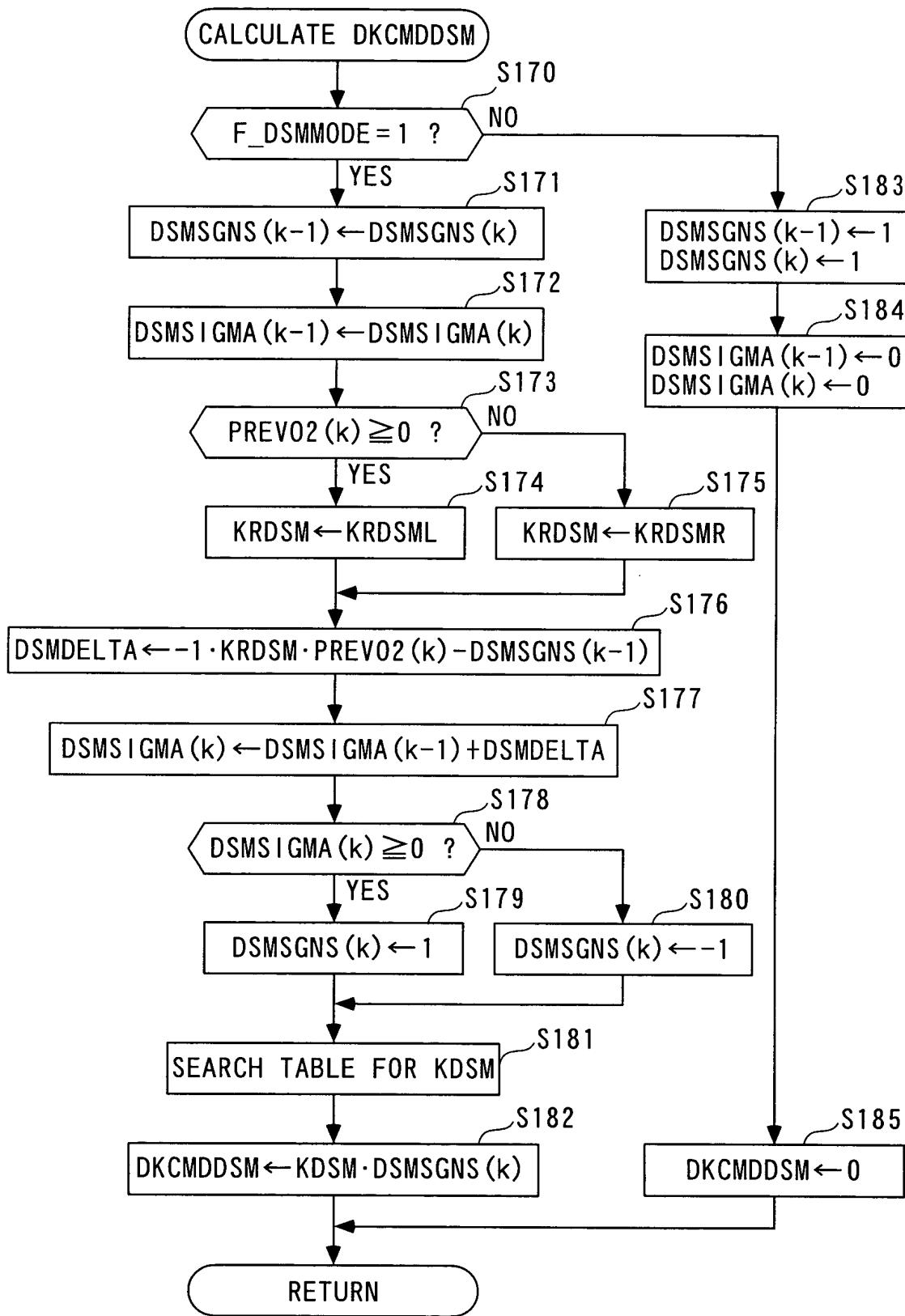
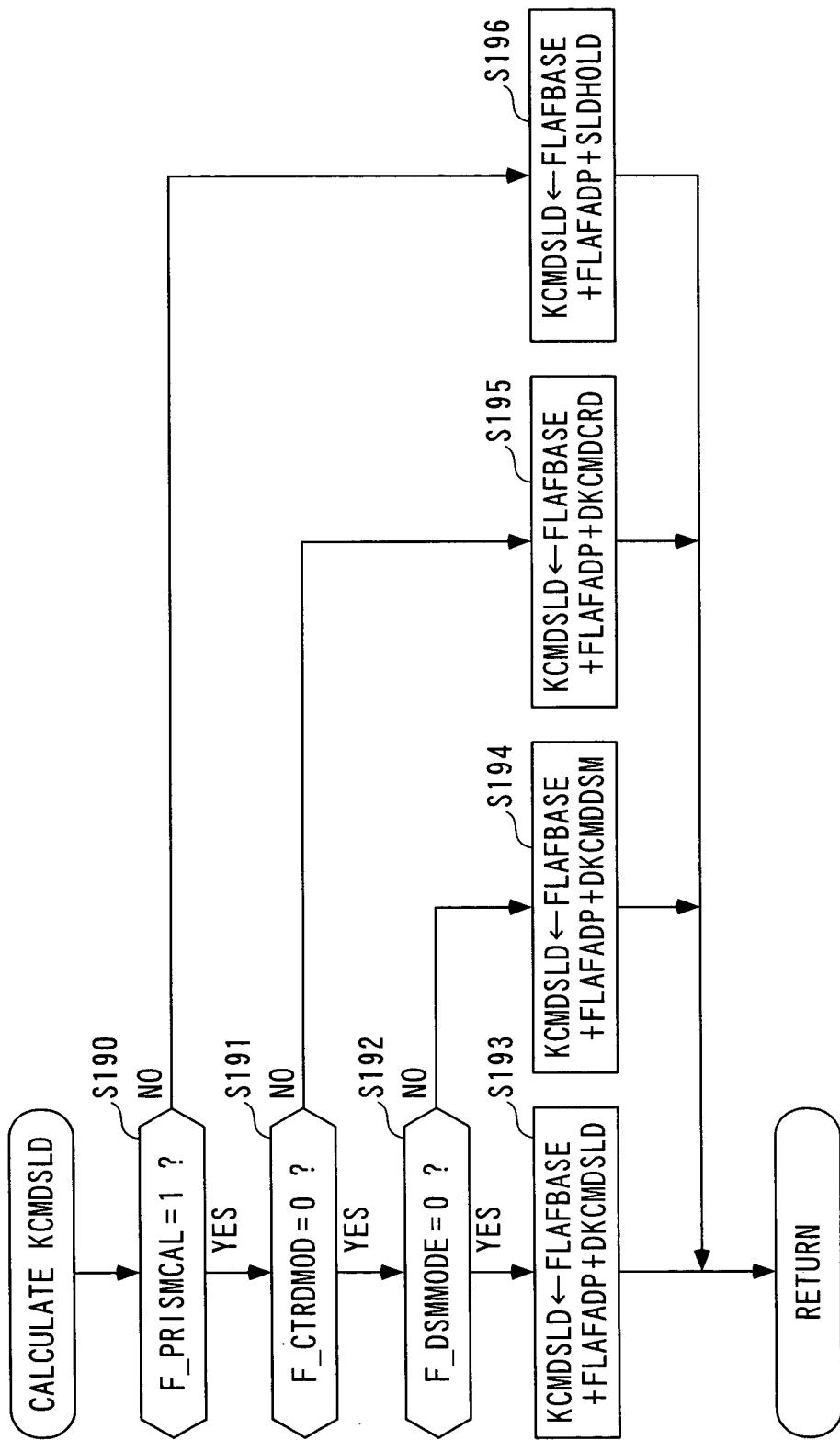


FIG. 25



F I G. 2 6



F I G. 27

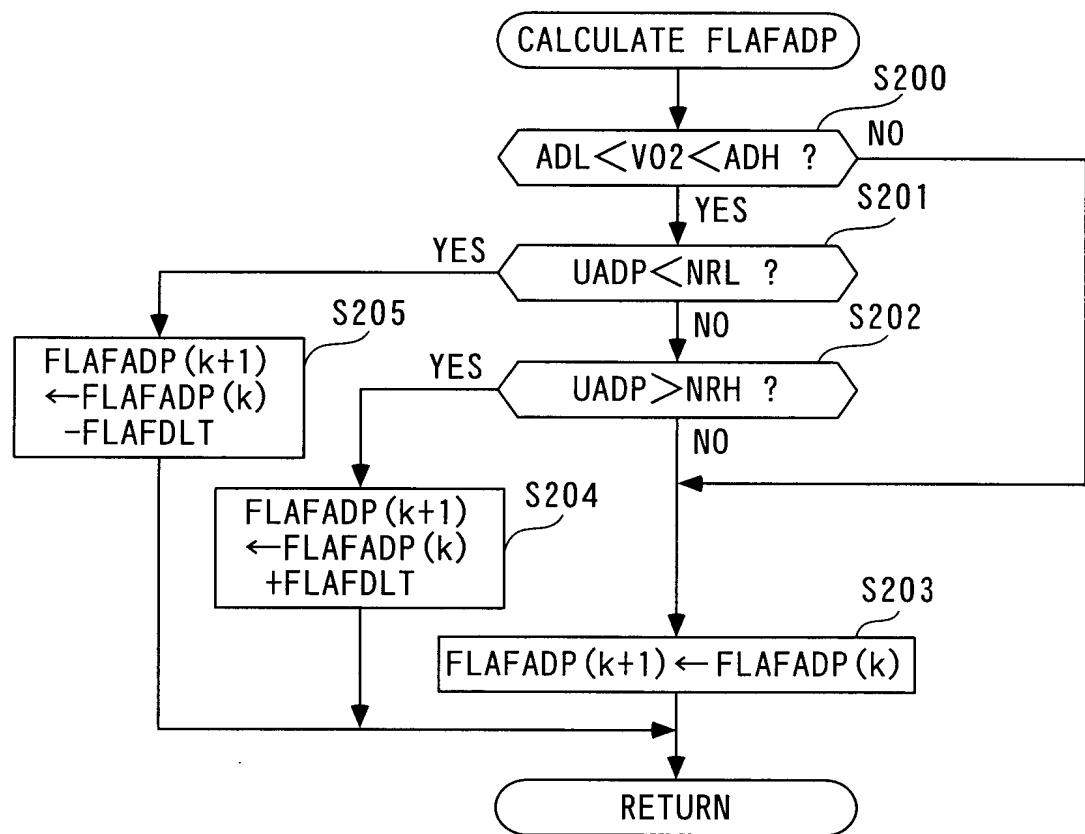


FIG. 28

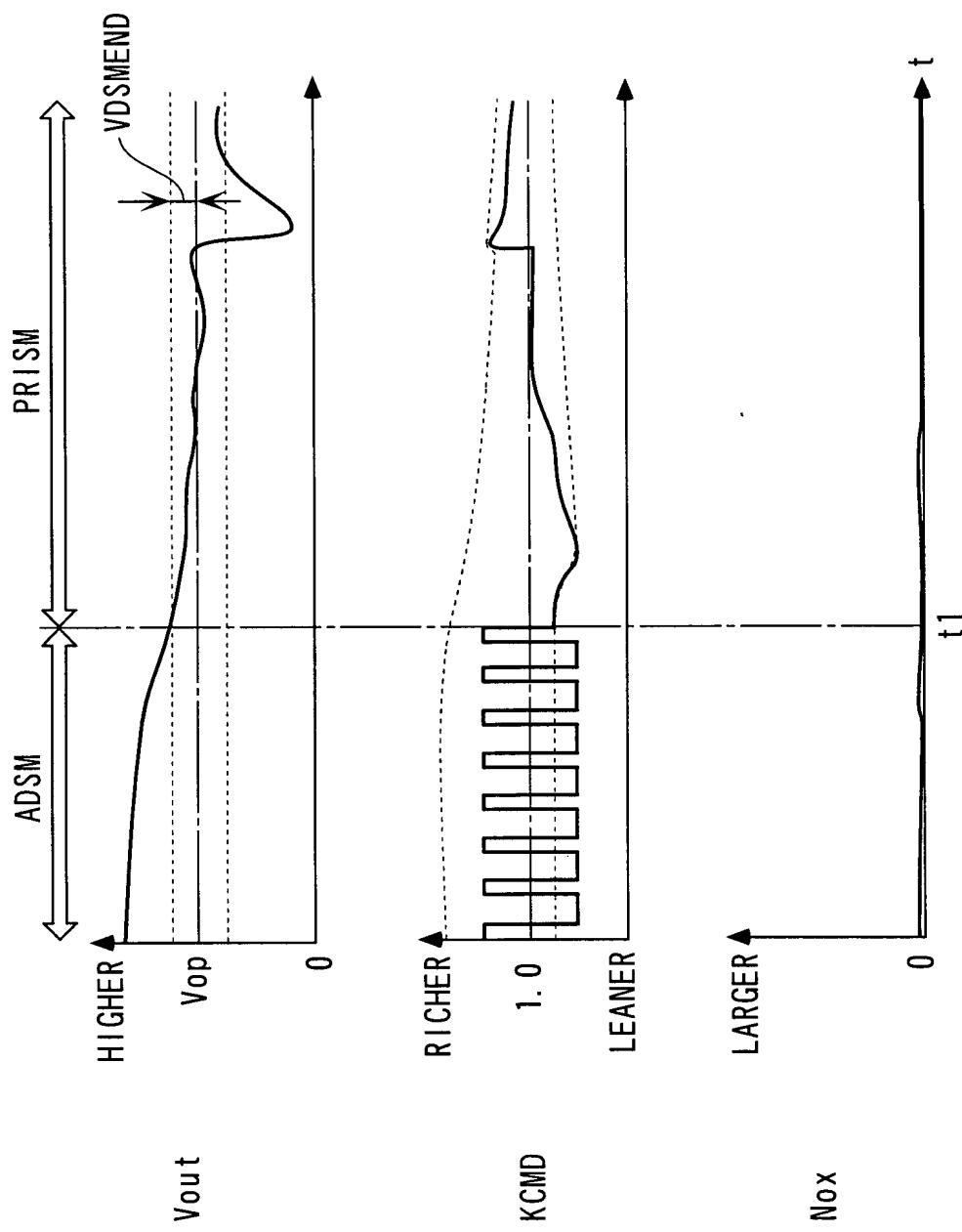


FIG. 29

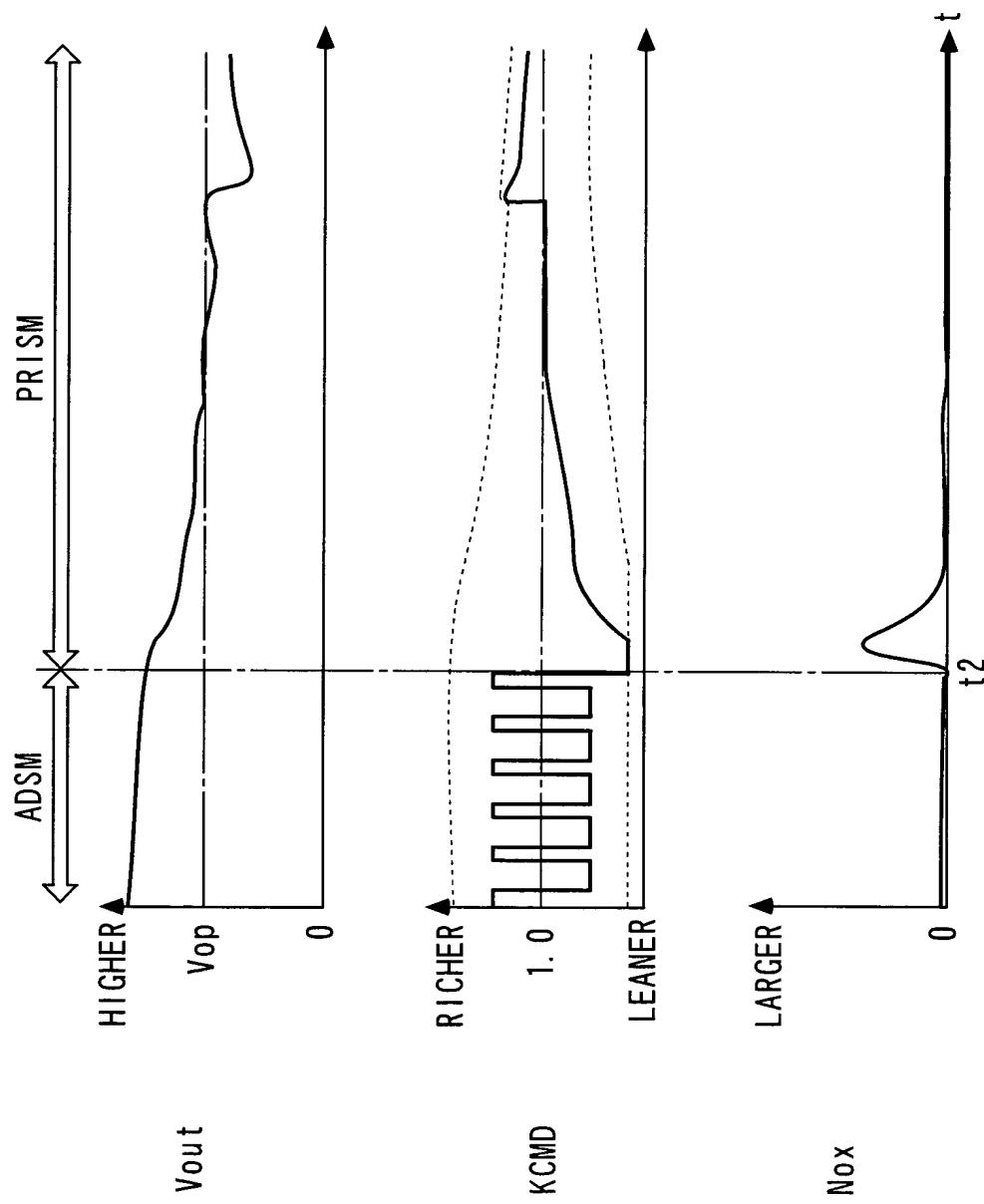


FIG. 30

201

29

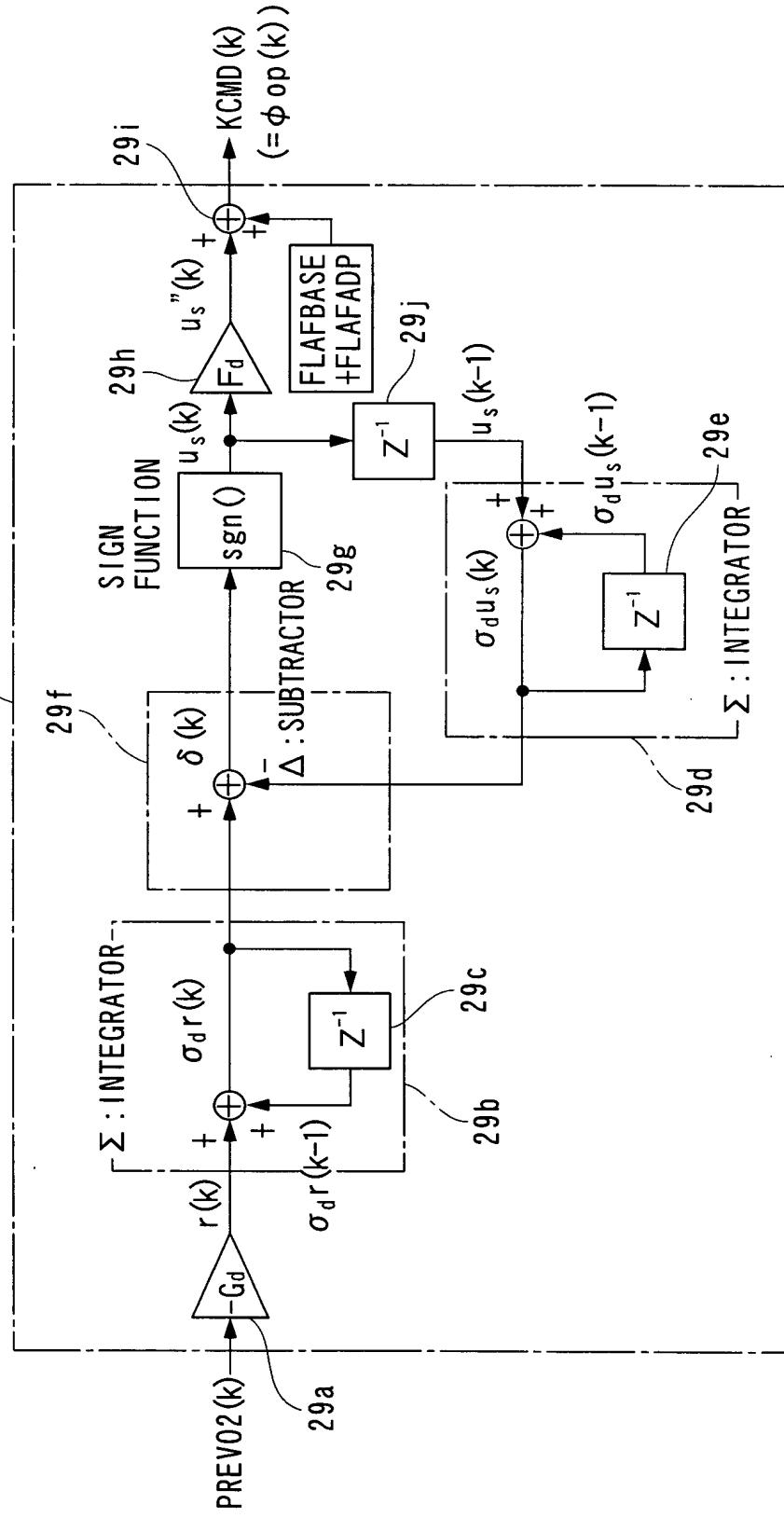


FIG. 31

